

## CLAIMS

1. A G0 transgenic chimera bird  
which is introduced an exogenous antibody gene with a  
5 replication-defective retrovirus vector, and  
produces an antibody derived from a transgene in at  
least one of blood, albumen, and egg yolk.

2. The G0 transgenic chimera bird according to Claim  
10 1,  
wherein a class of a constant region of the antibody  
is human IgG.

3. The G0 transgenic chimera bird according to Claim  
15 1,  
wherein a subclass of a constant region of the  
antibody is human IgG1.

4. The G0 transgenic chimera bird according to Claim  
20 1,  
wherein the constant region of the antibody is quail  
IgG, chicken IgG, or mouse IgG.

5. The G0 transgenic chimera bird according to any  
25 one of Claims 1 to 4,  
wherein the antibody gene is controlled by a  
constitutive promoter.

6. The G0 transgenic chimera bird according to Claim  
30 5,  
wherein the constitutive promoter is chicken  $\beta$ -actin  
promoter.

7. The G0 transgenic chimera bird according to any  
35 one of Claims 1 to 6,

wherein the retrovirus vector is a vector derived from Moloney murine leukemia virus.

8. The G0 transgenic chimera bird according to any  
5 one of Claims 1 to 7,  
wherein the retrovirus vector is a VSV-G pseudo type one.

9. The G0 transgenic chimera bird according to any  
10 one of Claims 1 to 8,  
wherein the bird is a chicken or quail.

10. The G0 transgenic chimera bird according to any  
one of Claims 1 to 9,  
15 wherein the antibody is a chimera antibody.

11. The G0 transgenic chimera bird according to  
Claim 10,  
which contains not less than 0.5 µg/ml of the  
20 antibody in blood.

12. The G0 transgenic chimera bird according to  
Claim 11,  
which contains not less than 5 µg/ml of the antibody  
25 in blood.

13. The G0 transgenic chimera bird according to  
Claim 10,  
which contains not less than 0.1 µg/ml of the  
30 antibody in albumen.

14. The G0 transgenic chimera bird according to  
Claim 13,  
which contains not less than 1 µg/ml of the antibody  
35 in albumen.

15. The G0 transgenic chimera bird according to Claim 10,

5 which contains not less than 0.1 µg/ml of the antibody in egg yolk.

16. The G0 transgenic chimera bird according to Claim 15,

10 which contains not less than 1 µg/ml of the antibody in egg yolk.

17. The G0 transgenic chimera bird according to any one of Claims 1 to 9,

15 wherein the antibody is an scFv-Fc antibody.

18. The G0 transgenic chimera bird according to Claim 17,

20 which contains not less than 20 µg/ml of the antibody in blood.

19. The G0 transgenic chimera bird according to Claim 18,

25 which contains not less than 2000 µg/ml of the antibody in blood.

20. The G0 transgenic chimera bird according to Claim 17,

30 which contains not less than 5 µg/ml of the antibody in albumen.

21. The G0 transgenic chimera bird according to Claim 20,

35 which contains not less than 500 µg/ml of the antibody in albumen.

22. The G0 transgenic chimera bird according to Claim 17,  
which contains not less than 5 µg/ml of the antibody in egg yolk.

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23. The G0 transgenic chimera bird according to Claim 22,  
which contains not less than 500 µg/ml of the antibody in egg yolk.

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24. A production method of an antibody  
which comprises producing the G0 transgenic chimera bird according to any one of Claims 1 to 23, and  
recovering the antibody from blood and/or an egg of  
15 said G0 transgenic chimera bird.

25. A production method of a G0 transgenic chimera bird  
which comprises incubating a bird fertile egg,  
20 infecting an early embryo after and exclusive of a blastodermal period immediately after the spawning with a replication-defective retrovirus vector, and then hatching the embryo.

25 26. The production method of a G0 transgenic chimera bird according to Claim 25,  
which comprises incubating a bird fertile egg,  
infecting an early embryo after the lapse of 24 hours or more from the start of the incubation with a replication-  
30 defective retrovirus vector, and then hatching the embryo.

27. The production method of a G0 transgenic chimera bird according to Claim 25 or 26,  
which comprises incubating a bird fertile egg, and  
35 microinjecting a replication-defective retrovirus vector to

a heart or blood vessel formed in the early embryo.

28. The production method of a G0 transgenic chimera bird according to Claim 25 or 26,

5        which comprises incubating a bird fertile egg, and microinjecting a replication-defective retrovirus vector to a heart or blood vessel formed in the early embryo formed after the lapse of 24 hours or more from the start of the incubation.

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29. The production method of a G0 transgenic chimera bird according to any one of Claims 25 to 28,

      which comprises microinjecting a replication-defective retrovirus vector having the titer of not less  
15        than  $1 \times 10^7$  cfu/ml.

30. The production method of a G0 transgenic chimera bird according to Claim 29,

      which comprises microinjecting a replication-defective retrovirus vector having the titer of not less  
20        than  $1 \times 10^8$  cfu/ml.

31. The production method of a G0 transgenic chimera bird according to Claim 30,

25        which comprises microinjecting a replication-defective retrovirus vector having the titer of not less than  $1 \times 10^9$  cfu/ml.

32. The production method of a G0 transgenic chimera  
30        bird according to any one of Claims 25 to 31,

      wherein the retrovirus vector is a vector derived from Moloney murine leukemia virus.

33. The production method of a G0 transgenic chimera  
35        bird according to any one of Claims 25 to 32,

wherein the retrovirus vector is a VSV-G pseudo type one.

34. The production method of a G0 transgenic chimera  
5 bird according to any one of Claims 25 to 33,  
wherein the bird is a chicken or quail.

35. The production method of a G0 transgenic chimera  
bird according to any one of Claims 25 to 34,  
10 wherein a gene sequence not derived from a retrovirus  
is contained in a transgene incorporated into a  
replication-defective retrovirus vector.

36. The production method of a G0 transgenic chimera  
15 bird according to Claim 35,  
wherein the gene sequence not derived from a  
retrovirus is a gene sequence controlled by chicken  $\beta$ -actin  
promoter.

37. The production method of a G0 transgenic chimera  
20 bird according to Claim 35 or 36,  
wherein the gene sequence not derived from a  
retrovirus is a gene sequence coding for an antibody gene.

38. The production method of a G0 transgenic chimera  
25 bird according to Claim 37,  
wherein the antibody gene is a chimera antibody gene.

39. The production method of a G0 transgenic chimera  
30 bird according to Claim 37,  
wherein the antibody gene is an scFv-Fc antibody gene.

40. The production method of a G0 transgenic chimera  
bird according to Claim 35 or 36,  
35 wherein the gene sequence not derived from a

retrovirus is a gene sequence coding for a fusion protein gene.

41. A G0 transgenic chimera bird  
5 which is produced by the method according to any one  
of Claims 25 to 40.

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